

JOB COMPLETION REPORT
INVESTIGATIONS PROJECTS

State of Montana

Project No. F-7-R-2 Work Plan No. IV Job No. IV-B

Title of Job: Developing Measures to Determine Kokanee Abundance in Flathead Lake

Objectives:

To determine the relative abundance of kokanee in Flathead Lake that yearly fluctuations in abundance may be noted.

Techniques Used:

Creel census was taken periodically on Flathead Lake. The census was obtained through Game Wardens, guides and outfitters and by fishermen who kept logs. Boat counting forms were given to two reliable residents on the lake shore to obtain fishing pressure on part of the lake. The number of kokanee caught by nets during the spawn taking operations was counted for each net haul. Gill nets were set in one area of the lake.

Findings:

A brief description of Flathead Lake is presented in Job No. III-A. Creel census data as collected by the various means shows that the following fish were caught in Flathead Lake: cutthroat trout, rainbow trout, dolly varden trout, bullheads, Rocky Mountain whitefish, kokanee, squawfish, and suckers. The catch per hour was 1.3 fish. Kokanee made up 86.4 percent of all fish caught and catch per hour for kokanee was 1.1 fish.

A record was made of fish caught during the seining and spawn taking operations on the lake. (Table 1). The seines used were 8 feet wide with one inch bar measure but varied in length. The seine used at Rollins Bay and Somers Hatchery Bay was 400 feet long while the seine used at Dr. Richards Bay was 240 feet long. The average number of kokanee per seine haul was 1,268 at Dr. Richards Bay, 559 at Rollins Bay and 1,692 at Somers Hatchery Bay.

Table 1. The number of kokanee captured during seining operations on Flathead Lake during November, 1952.

Date	Location	Number of fish	Number of seine hauls	Length of seine in feet
Nov. 17	Dr. Richards Bay	4,808	3	240
Nov. 20	Dr. Richards Bay	2,801	3	240
Nov. 18	Somers Hatchery Bay	3,383	2	400
Nov. 19	Rollins Bay	1,797	3	400

Gill nets were not successful in capturing kokanee. Three ten-hour sets were made. Dolly varden trout, mountain whitefish, yellow perch, squawfish, suckers and Columbia River chubs were the species of fish caught.

A count was made of the boats on part of Flathead Lake during the summer. One station was selected at Woods Bay on the east shore of the lake and the other was selected on the northeast corner of the lake at the mouth of Swan River. From these two points counts of boats on only parts of the lake could be made. The party at Woods Bay turned in a record for three days. Due to his orchard interests, he was not able to continue counts the remainder of the summer (Table 2).

Table 2. Fishing boats counted on Flathead Lake from Woods Bay, 1952.

Date	Time of day	Number of boats
July 22	10:00 AM	14
July 22	5:00 PM	12
July 24	6:30 PM	17
July 24	8:30 PM	4
July 27	9:00 AM	11
July 27	6:30 PM	22
July 27	8:30 PM	7

The dispatcher at the Big Fork Ranger Station made a count of boats on Flathead Lake during the fire season, which was unusually long last summer. The boat counts and time of counts were made simultaneously with observations for forest fires. This record was kept for about four months but unfortunately it fell into the hands of some unauthorized party.

Analysis and Recommendations:

Three methods were attempted to determine the abundance of kokanee in Flathead Lake. The catch per hour as determined by creel census of all species of fish was 1.3 with kokanee making 86.4 percent of the catch. The catch of kokanee per hour was 1.1 fish. The catch per seine haul during spawn taking operations was different for each area. The number captured per seine haul at Dr. Richards Bay was 1,268, at Somers Hatchery Bay 1,692 and at Rollins Bay 599 kokanee. The gill nets were not successful in catching kokanee in the lake. It appears that creel census is one method that will give the most reliable available data on yearly fluctuations of the abundance of kokanee. Some data will be gained by success of seining operations during the spawning season, however, it probably will not be as accurate as the creel census data. Measures of fishing pressure should be attempted again. It is recommended that this study be continued for another year.

Summary:

The catch per hour of kokanee was found to be 1.1 fish as determined by creel census. Fish caught per seine haul during the spawn taking operations was 1,268 at Dr. Richards Bay, 1,692 at Somers Hatchery Bay and 599 at Rollins Bay. Gill nets were not successful in capturing kokanee.

Data and Reports:

The original data and related reports are with the project leader at Kalispell, and with the Fish and Game Department in Helena, Montana

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